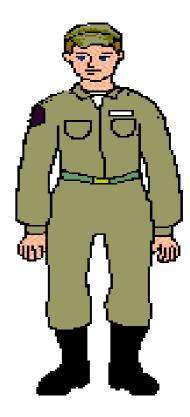


# **Armed Forces College of Medicine AFCM**







# The Gluteal Region II By Prof Azza Kamal

### **Intended Learning Outcomes**



- By the end of this lecture, each student should be able to:
- 1) Identify the greater and lesser sciatic foramina with the sacrotuberous & sacrospinous ligaments.
- 2) List the six lateral rotators of the hip.
- 3) Describe the attachments, nerve supply and action of the 6 lateral rotators of the hip.
- 4) List the structures passing above & below piriformis.
- 5) Enumerate the nerves of the gluteal region with their distribution.
- 6) List arteries of the gluteal region with important

### **KEY PONTS OF THE LECTURE**

- 1.The six lateral rotators of the hip: attachment/ nerve supply/ action
- 2.Structures passing above and below piriformis
- 3. Nerves & vessels of the gluteal region

Ligaments and 2 2 Foramina

Sacrospinous ligament



Greater sciatic foramen

Lesser sciatic foramen

Ischial **Obturat** spine or membr Ischialosi. ane

Frank H. Netter Atlas of Human Anatomy 6<sup>th</sup> edition

Sacrotubero us ligament

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#### sacrum

#### coccyx

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Sacrotuberou s ligament

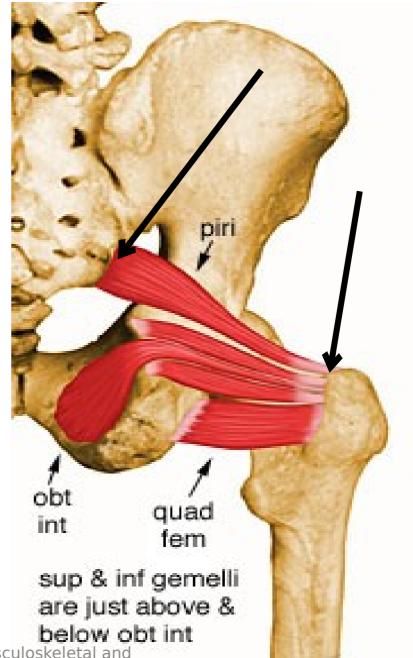
Sacrospino

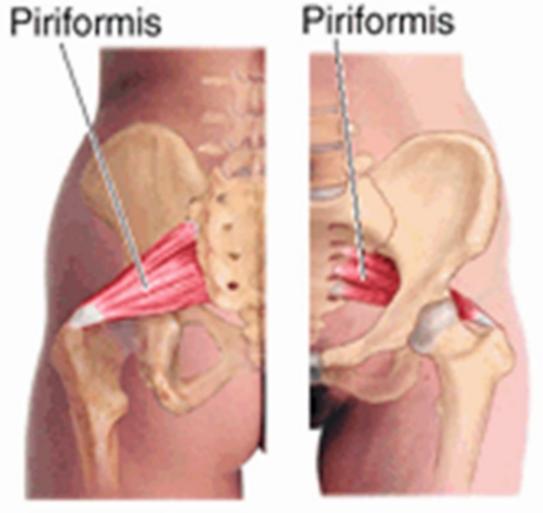
ligament

us

# Piriform is

- Origin front of middle3 pieces of sacrum





ormis

Insertion of p





(G) Anterior view

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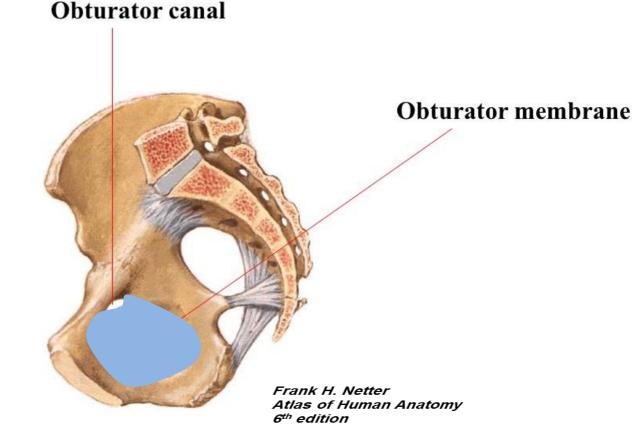


### **Obturator internus**

Origin 
 [] inner surface of obturator membrane

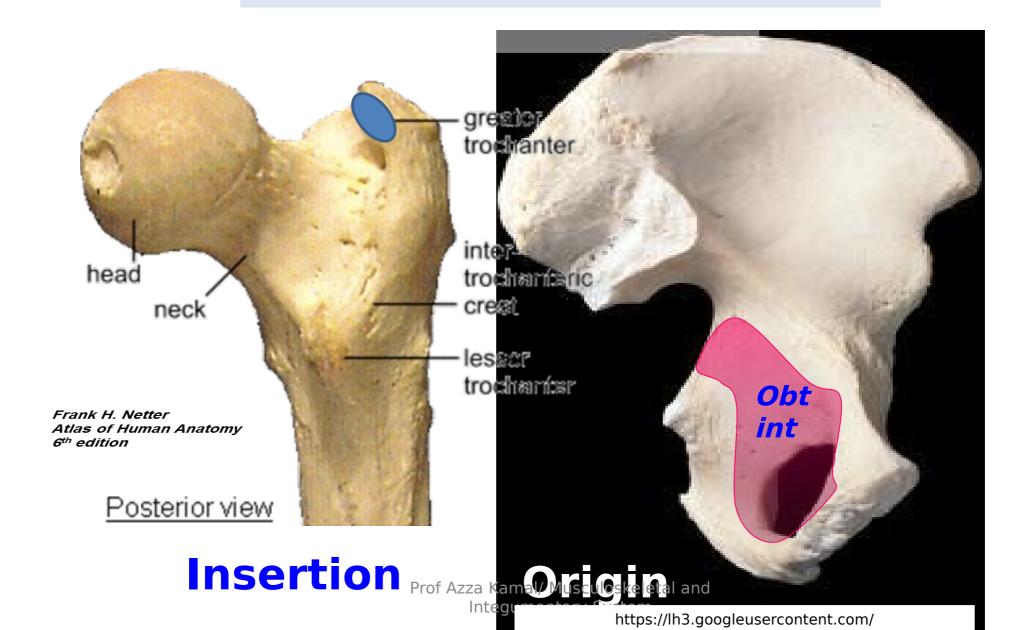
Nerve supply

 nerve to
 obturator internus





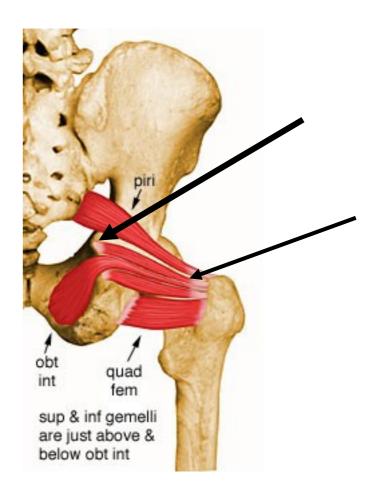
### **Obturator internus**





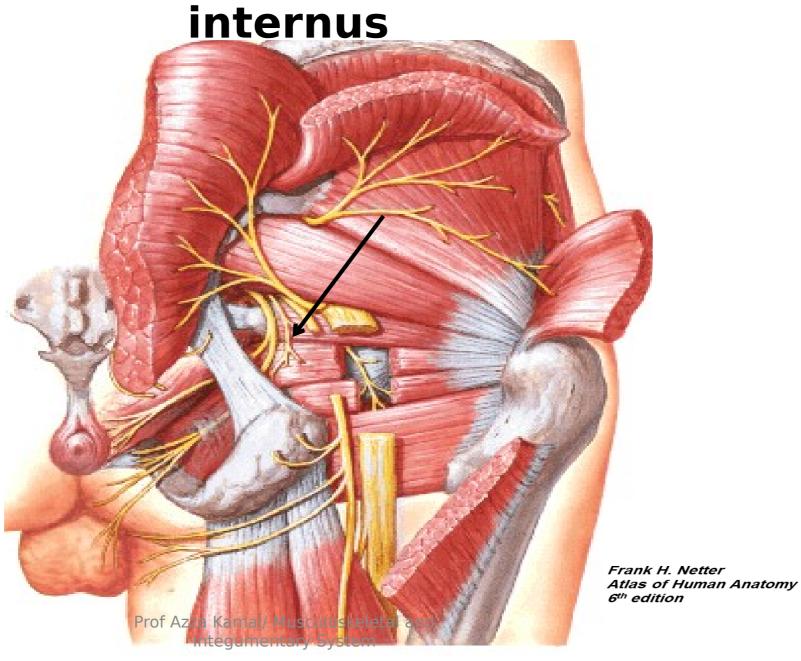
## **Gemellus superior**

- Origin 
   [] upper margin of lesser sciatic foramen
- Nerve supply [] n
   to obturator
   internus



https://lh3.googleusercontent.com/ WZU2qC3WruQvv66S1pgT Nerve supply [] n to obturator

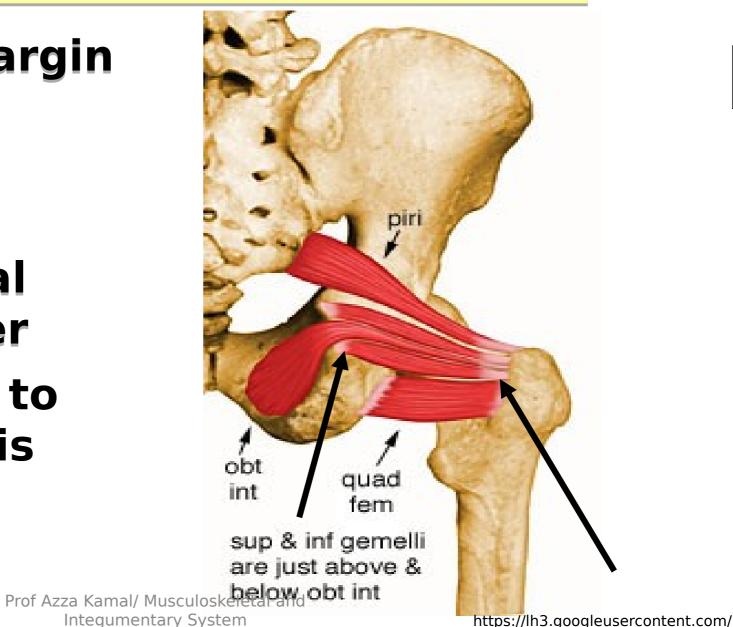




### **Gemellus inferior**

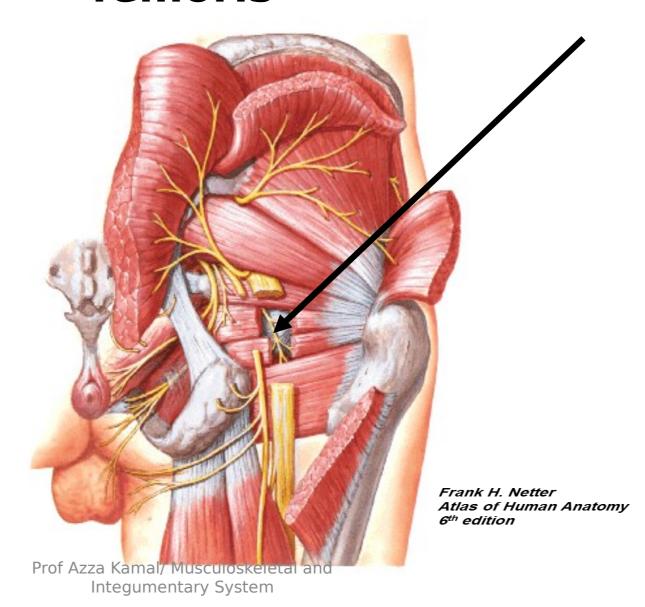
Origin 
 [lower margin of lesser sciatic foramen

- trachanter 
   <sub>|</sub> n to quadratus femoris



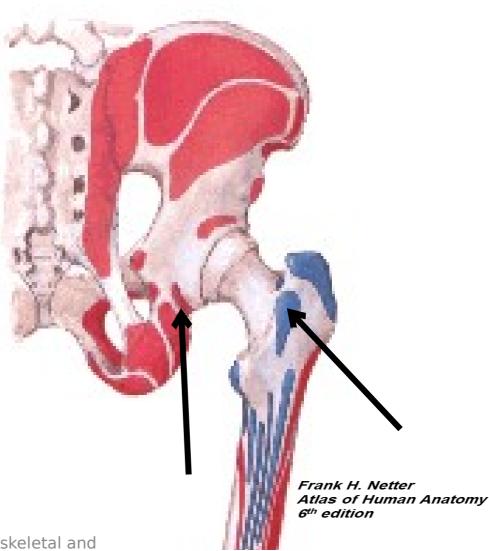
WZU2aC3WruOvv66S1naT

# Nerve supply [] n to quadratus femoris



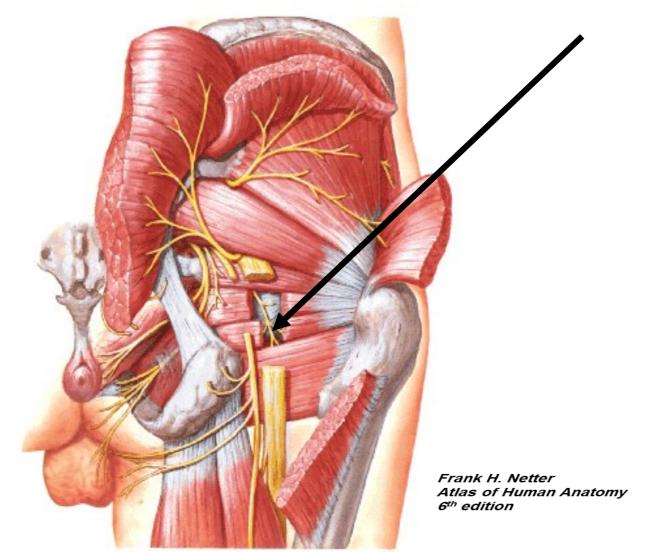


## **Quadratus Femoris**



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# Nerve supply [] n to quadratus femoris





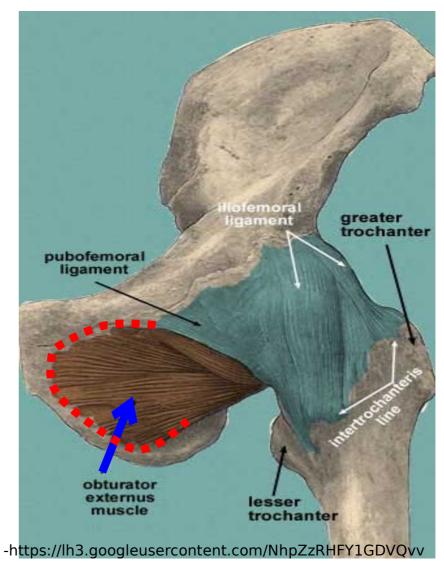


### **Obturator externus**

Origin
 outer margin of obturator foramen & outer surface of obturator membrane

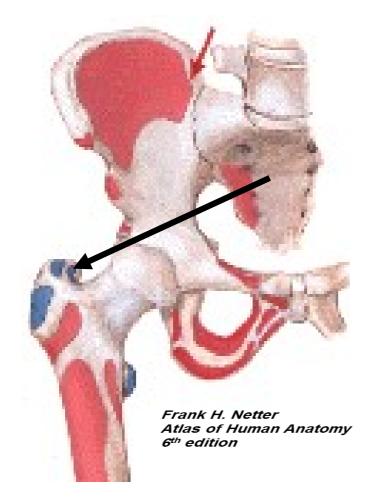
Insertion
 Insertion
 Insertion

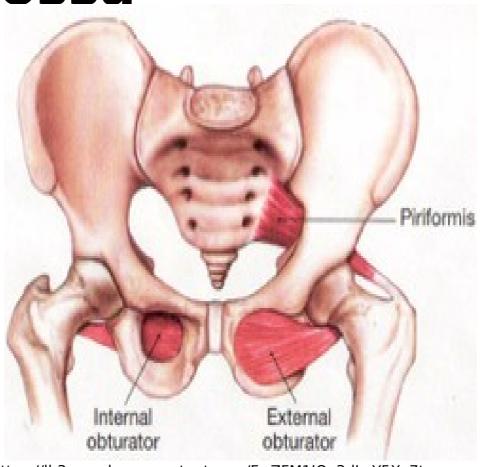
 Nerve supply post division of obturator n (from lumbar plexus)



# Insertion into trochanteric fossa





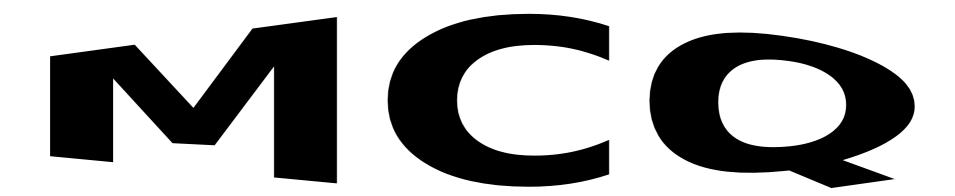


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# Actions of the 6 lateral rotators of the thigh

- Piriformis, obturator internus, obturator externus, gemellus superior, gemellus inferior and quadratus femoris are the 6 lateral rotators of the hip.
- They are postural muscles which control the degree of rotation at the hip during various movements at this joint.





All are lateral rotators of the hip,

:Except

- a)Piriformis
- b)Rectus femoris
- c) Quadratus femoris
- d)Obturator internus
- e)Obturator externus





# Gluteal

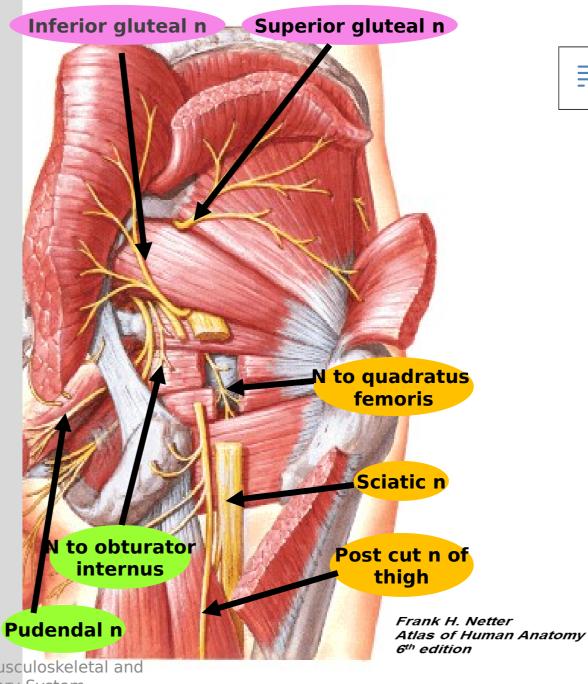
#### \* All a Nerves

acral

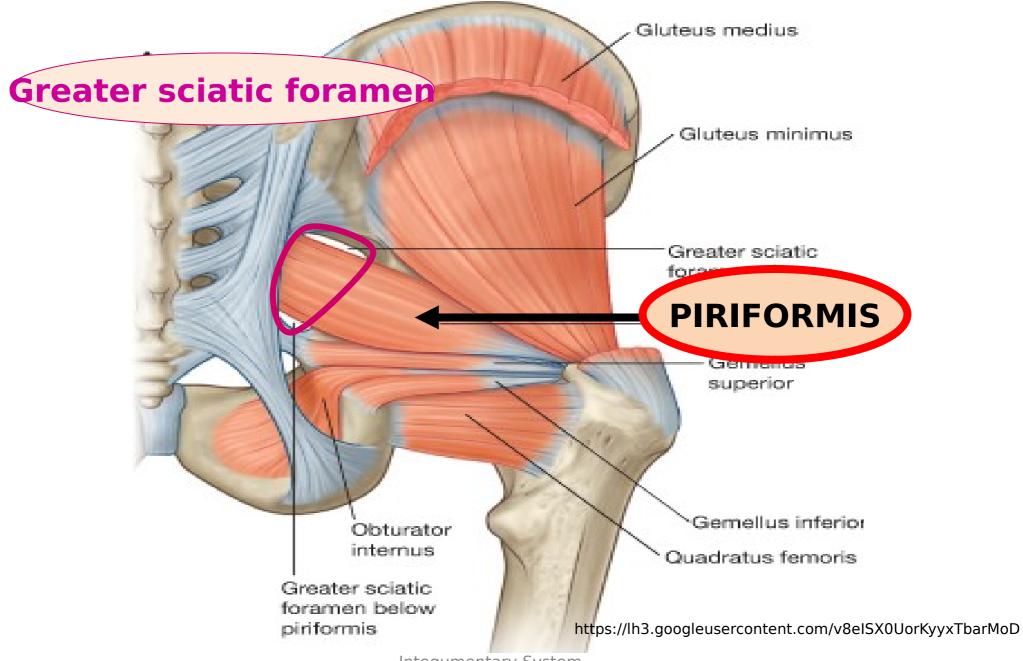
#### plexus in the pelvis.

- 1) Superior gluteal nerve (L4,5, S1) [Supplies glutei medius, minimis & tensor fasciae latae
- 2) Inferior gluteal nerve (L5, S1,2) supplies glut. maximus
- 3) Sciatic nerve (L4,5, S1,2,3)
- 4) Posterior cutaneous nerve of thigh (\$1,2,3)
- 5) Nerve to quadratus femoris (L5, S1) [] supplies quadratus femoris & gemellus inf.
- 6) Pudendal nerve (S2,3,4) external genitalia
- 7) Nerve to obturator internus

(L5, S1) [] supplies obturator internus Kamal/Musculoskeletal and System







Integumentary System

# Structures passing through greater sciatic foramen (passing from pelvis to gluteal region)





Structure s above Piriformis Structure
S
Below
Piriformis

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Integumentary System

### Structures passing above piriformis



2. Superior glute vessels

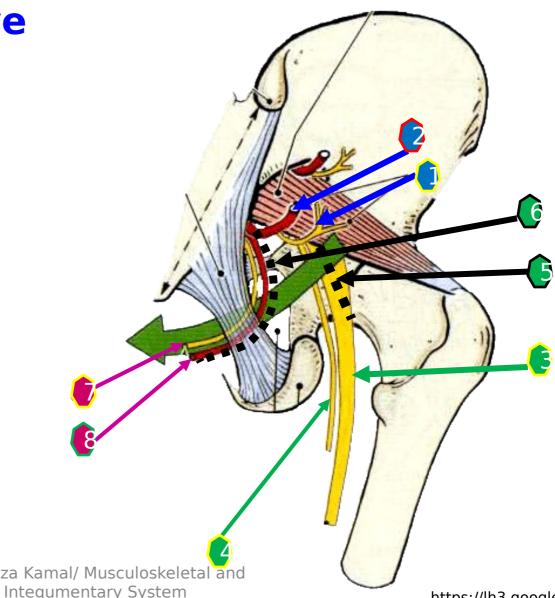


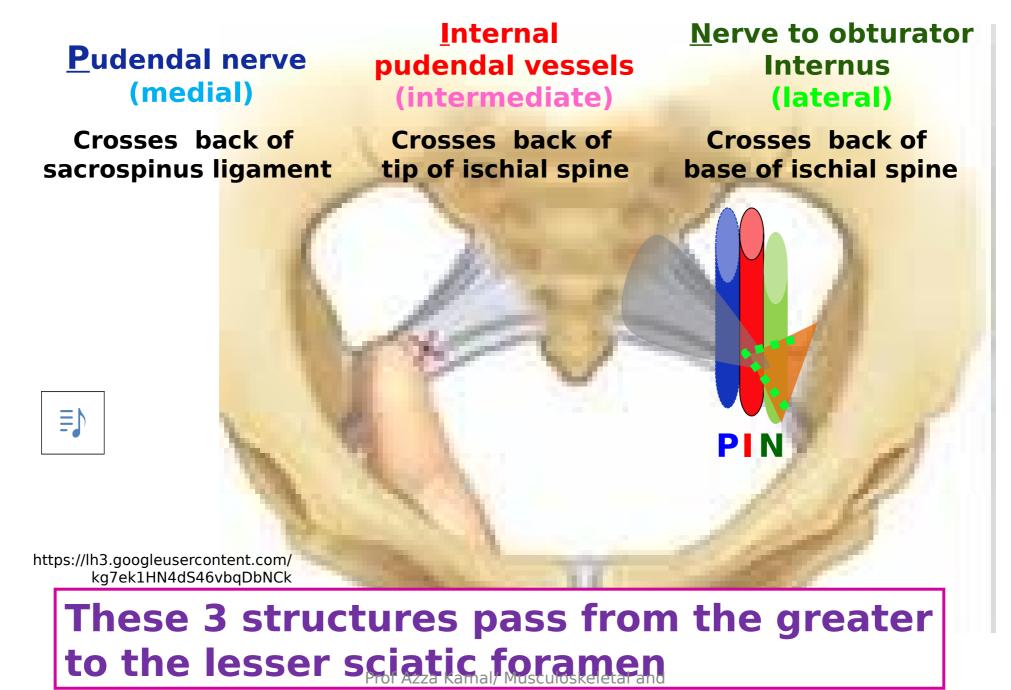
https://lh3.googleusercontent.com/ Hp4o937ZnbEusFT HS6szlz

#### Structures passing below piriformis



- 1. Inferior gluteal nerve
- 2. Inferior gluteal vessels
- 3. Sciatic nerve
- 4. Posterior cutaneous nerve of thigh
- 5. N. to quadratus femoris
- 6. N. to obturator internus
- 7. Pudendal nerve
- 8. Internal pudendal Prof Azza Kamal/ Musculoskeletal and Integumentary System



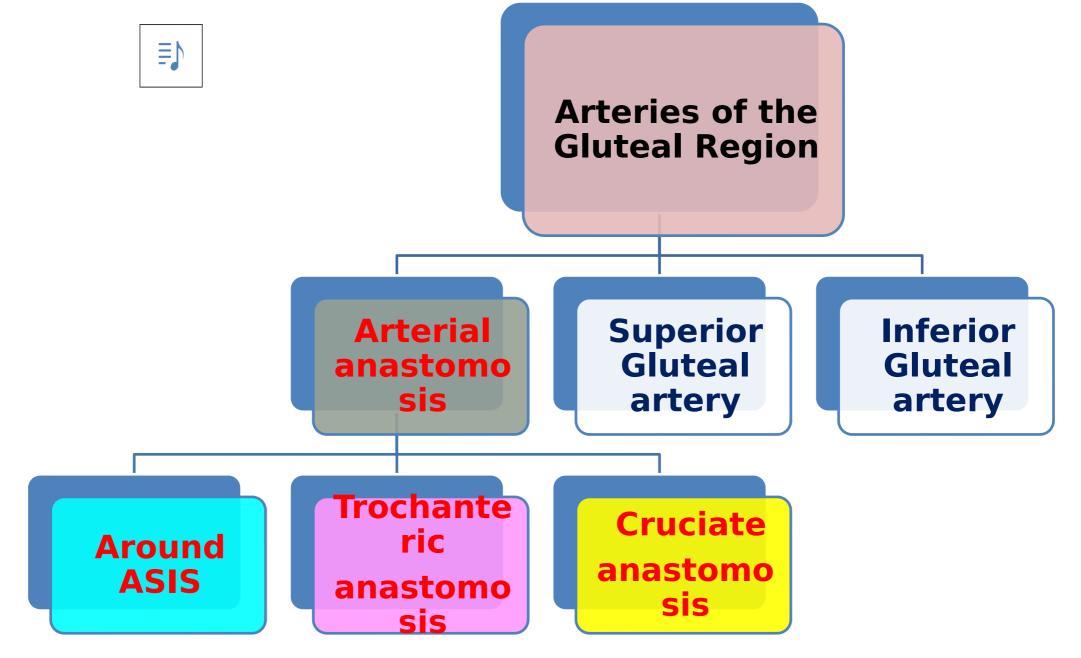


Integumentary System



A surgeon operating on the gluteal region accidently injured a nerve passing above priformis muscle. Which of the following is the injured nerve? a) Nerve to quadratus femoris b) Nerve to obturator internus c) Pudendal nerve d)Sciatic nerve

e)Superior gluteal nerve



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# The superior gluteal artery:

- ☐ Branch from posterior division of internal iliac.
- ☐ Enters gluteal region through greater sciatic foramen above piriformis.
- □ Divides into a **superficial** & a **deep** division.
- ☐ Deep division divides into an upper and a lower branch..
- □ The upper branch shares in anastomosis around ASIS
- ☐ The lower branch shares in the trochanteric

Superior gluteal artery Inferior gluteal artery trochante ric anastomo Sis Deep artery of thigh First perforating artery Femoral artery Second perforating artery Third perforating artery

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-zupLwaaB5Xj1EJVBcGF

# The inferior gluteal

Iliac crest

Gluteal aponeurosis

Gluteus medius muscle (cut)

Gluteus minimus muscle

Tensor fasciae latae muscle

- ☐ Brancartery:
  - division of internal iliac.
- ☐ Enters gluteal region through greater sciatic foramen below

#### Gives:

- a) Branch that accompanies the sciatic nerve (companion artery of sciatic nerve).

cruciate and

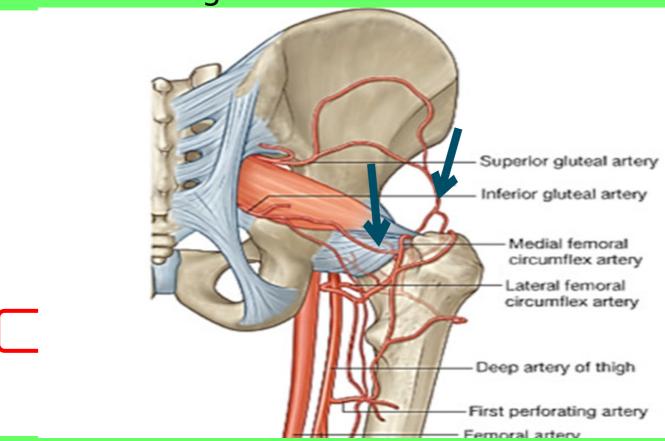
Gluteus medius muscle (cut) Inferior glutealpiriformis. Gluteus maximus --Superior gemellus muscle Internal pudendal Quadratus femoris muscle Medial circumflex femoral artery Gluteus maximus muscle Iliotibial tract b) Branches that share in the https://lh3.googleusercontent.com/ -CcsXE8fjkw5ZYfxz0ki9 trochantoric

Common iliac arter

Superior gluteal

# Trochanteric anastomosis ( near trochanteric fossa of femur)

A branch from superior gluteal and a branch from inferior gluteal arteries.





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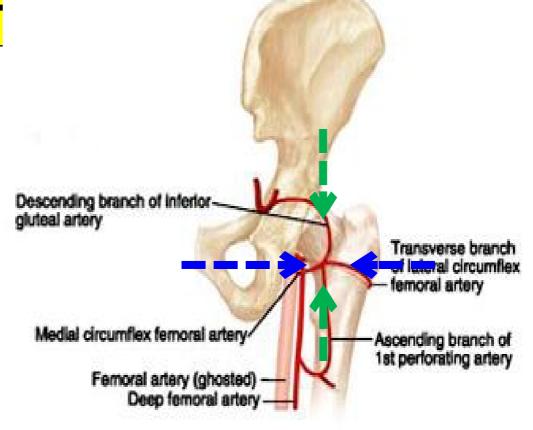
Ascending branch of medial and lateral circumflex femoral action of medial and lateral circumflex femoral actions and lateral circumflex femoral actions and lateral expension of medial and lateral circumflex femoral actions are supported by the support of the support of

# Cruciate anastomosis [] in uppermost part of back

1-Transverse medial and lateral circumflex femoral arteries

2-Descending branch from the inferior gluteal artery

3-Ascending branch from the 1st perforating artery of profunda femoris



https://d1yboe6750e2cu.cloudfront.net/i/4db47624947c20cb20d03a31f06d81cd5a719c80

Anastomotic connection between internal Prof Azza Kamal Musculoskeletal and Musculoskeletal and Integumentary System removal arteries

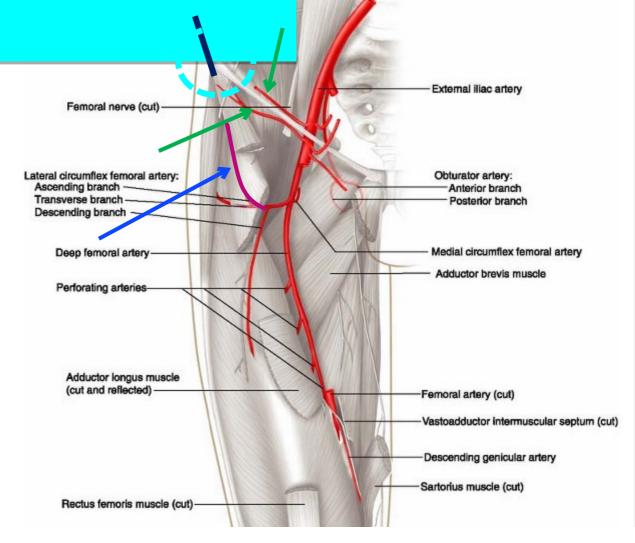
# Anastomosis around the ASIS

1-Superficial and deep circumflex iliac arteries.

2-Ascending branch of lateral circumflex femoral artery.

3-A branch of super gluteal artery





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A surgeon operating on the gluteal region, accidently injured the nerve to obturator internus, you expect the following muscle to be injured:

- a) Obturator externus
- b) Quadratus femoris
- c) Piriformis
- d) Gemellus superior
- e) Gemellus inferior





#### :Suggested Textbook

Clinical Anatomy for Medical Students Richard S. Snell / Third Edition Pages 574-577





# Thank you

